

Remarks:

This application has been reviewed carefully in view of the Office Action mailed August 25, 2005 ("the Office Action"). In the Office Action, the examiner alleged
5 provisional application number 60/212,066 lacked adequate support under 35 U.S.C. § 112 for claims 1-39 of the application. Claims 1-6, 9, 18, 20 and 33-35 were rejected under 35 U.S.C. § 102(e) as being anticipated by Chai (US 6,225,776). Claims 40-42 were rejected under 35 U.S.C. § 102(e) as being anticipated by Gilbert (US 6,357,011). Claims
10 7-8 were rejected under 35 U.S.C. § 103(a) as being obvious over Chai and Matsko (US 4,351,013). Claims 10-13 were rejected under 35 U.S.C. § 103(a) as being obvious over Chai and Carson et al. (US 6,842,668). Claims 14, 16-17, 21-23, 36 and 38-39 were rejected under 35 U.S.C. § 103(a) as being obvious over Chai and Gilbert. Claims 15 and 37 were rejected under 35 U.S.C. § 103(a) as being obvious over Chai and Gilbreth (US 2003/0007369). Claim 19 was rejected under 35 U.S.C. § 103(a) as being obvious
15 over Chai and Hunter (US 5,724,237). Claims 24-32 were rejected under 35 U.S.C. § 103(a) as being obvious over Tseng (US 5,631,536), McKenzie (US 6,003,139) and Henze (US 5,926,004).

The above-described objections and rejections are addressed as follows:

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1. PRIORITY

a. Assertedly Missing Disclosure

The Office Action recited that provisional application number 60/212,066 lacked
25 adequate support under 35 U.S.C. § 112 for claims 1-39 of the application. While the Office Action does not explicitly state which requirement under 35 U.S.C. § 112 (e.g., written description or enablement) is allegedly lacking, Applicants believe the Office Action makes clear that it is the "written description" requirement that is discussed. This is an accord with the MPEP § 2163 (I), which recites that the written description issue in
30 many cases is phrased as whether the original application provides "adequate support" for the claims at issue.

In particular, the Office Action recites that no mention is found of “the sum of the secondary power port power ratings establishes an aggregate output power rating and wherein the aggregate output power rating can exceed a designated power limit,” and “a system controller circuit configured to regulate the power distributed by at least one
5 secondary power port of the plurality of secondary power ports such that if the sum of the power ratings of the secondary power ports simultaneously used to charge batteries exceeds the designated power limit, the power received from the power source does not exceed the designated power limit.”

10 As alleged evidence that the above-stated limitations are not supported by the provisional application, the office action recites that the provisional application claims quote “a poly-phase utility port for connecting the system with a utility,” “a DC-DC converter or a multiplicity of DC-DC converters residing in modules containing DC-ports for connection to electric powered vehicles,” and “a system controller for allocating the
15 power to the available modules to maintain the maximum summation of power to be no greater than the utility rating.”

b. Standard by Which Priority Is Judged

20 “To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.” MPEP § 2163(I), citing *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116.
25 “Possession may be shown in a variety of ways including ... describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention.” MPEP § 2163(I), citing *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998). “Factors to be considered in determining whether there is sufficient evidence of possession include the level of skill
30 and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure

and function, and the method of making the claimed invention.” (emphasis added) MPEP § 2163(II)(A)(3)(a)

5 “An objective standard for determining compliance with the written description requirement is, “does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed.” In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art
10 that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon “reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.” Ralston Purina Co. v. Far-Mar-Co., Inc., 772 F.2d 1570, 1575, 227 USPQ
15 177, 179 (Fed. Cir. 1985) (quoting In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).” MPEP § 2163.02

“To comply with the written description requirement of 35 U.S.C. 112, para. 1, or to be entitled to an earlier priority date or filing date under 35 U.S.C. 119, 120, or 365(c),
20 each claim limitation must be expressly, implicitly, or inherently supported in the originally filed disclosure.” MPEP § 2163(II)(A)(3)(b)

c. Relevant Skill in the Art

25 Applicants note that charging systems for charging multiple batteries, such as for electric vehicles, are complicated devices. A person skilled in the art of designing such charging systems is normally a highly skilled technologist with an understanding of electrical distribution systems.

d. Disclosure in the 60/212,066 Application

Disclosure that Applicants were in possession of the presently claimed invention occurs throughout the 60/212,066 application. Applicants apologize for not having specified the disclosure in more detail. In the following discussion, emphasis using underlined print is added to identify particularly relevant text from the application.

In the Background section of the application, Applicants recited the problem that the present invention solves. More particularly, the provisional application recites:

Typically the system circuit breaker has the capacity to operate at a current level up to the sum of each of the charger's circuit breakers, so the current limit of the system circuit breaker CB1 will be at or slightly over the sum of the existing associated circuit breakers CB2 and CB3.

Upgrading such a charging system to charge greater numbers of vehicles (or installing a battery charging system where none is in place) can significantly increase the current carried by the system circuit breaker, and therefore it will likely need to be upgraded to carry additional current. Increasing the maximum current capacity of the system circuit breaker (and related power transmission equipment) that supports the battery charging system requires increased capacity in each distributing circuit breaker upstream (along the circuit) from that system circuit breaker. Thus, increasing the number of vehicles that can be charged can potentially require expensive upgrading of a substantial portion of the facility's electrical system, requiring significant capital expenditures.

For example, as depicted in FIG. 1, in order to simultaneously charge additional vehicles (#4, #5 and #6), additional circuit breakers (CB4, CB5 and CB6), additional chargers and additional wiring are added to the system. The addition of these new circuits to the system requires that all name plate ratings of charging circuit breakers (CB2 to CB6) be added up to establish a new current value that the rating of the system wiring or of the system circuit breaker (CB1) cannot exceed. This is required even though the individual chargers might not all be in use at the same time and, if they are in use, they will most likely not be simultaneously operating at full power and fully utilizing the existing infrastructure.

In other words, a problem addressed by the invention is that upgrading a charging system to handle a greater number of batteries entails upgrading all of the upstream circuit breakers to handle a power level equal to the sum of all of the charging system circuit

breakers. This is precisely the problem dealt with by embodiments of the present invention, wherein the sum of the secondary power Port power ratings establishes an aggregate output power rating and wherein the aggregate output power rating can exceed a designated power limit (e.g., the rating of the circuit breaker immediately upstream from the charging system circuit breakers).

The fact that the present invention solves this problem is stated in the Summary of the Invention, which recites that “the present invention provides a charging system capable of limiting the power drawn from a utility, such that a facility’s electrical system, to a given nameplate rating, while allocating the power to a set of connected batteries based on parameters that can be manually entered, sensed, programmed, and/or otherwise the input.” (pg. 5, ll. 4-8) It further recites:

An advantage of at least some embodiments of the invention is that the utility power requirements of the charging system on a facility's electrical system is managed by the power management controller to meet the facility's overall electrical system requirements by managing the load allocated to each of the charging systems' connection ports. By varying the power allocation in a logical fashion, multiple charging requirements can be met while meeting the utility power requirements. (pg. 5, ll. 18-23)

Inherent in this statement is that the load allocated to each of the charging systems' connection ports, if not managed, could exceed the utility power requirements, and thus that the sum of the charging system name plate power ratings (as discussed in the background) exceeds the utility name plate power rating.

In the Detailed Description of the Preferred Embodiments, this point is further supported with the comment:

The power processor 102 preferably rectifies the current and manages the load allocated to each of the charging systems' ports 104. In doing so, it manages the power requirements that the charging system places on the utility so as to maintain a current level below that required by the circuit breakers and other electrical system components upstream from the charging system. By varying the power allocation between the ports in

a logical fashion, multiple vehicle charging requirements can be met while meeting the upstream utility power requirements. (pg. 8, l. 19 to pg. 9, l. 2)

Regarding the disclosure of a system controller circuit configured to regulate the power distributed by at least one secondary power port of the plurality of secondary power ports such that if the sum of the power ratings of the secondary power ports simultaneously used to charge batteries exceeds the designated power limit, the power received from the power source does not exceed the designated power limit, Applicants note the above-recited sections, and further note that the Detailed Description of the Preferred Embodiments further recites:

The power controller also serves as a point-of-allocation for the assignment of the available power to individual DC modules 124 based on the number of vehicles, SOC (state-of charge) numbers, amp-hour charging system capacity and/or reserve capacity (as well as any other factors that might influence power requirements and availability). (pg. 9, ll. 16-20)

Based on information that the distribution controller 148 has about the vehicles connected to the two (or perhaps more) associated ports 128, 130, and based on the power availability as determined by the power controller 122, the distribution controller controls the output of each DC-DC converter. By controlling both the DC-DC controller output and the switch configuration, the distribution controller controls the charging distribution to all of the vehicles connected to the DC module's associated port's. By changing the configuration and regulating the controllers, the DC modules provide significant flexibility in charging capability. (pg. 11, ll. 19-26)

Finally, the provisional application reiterates the invention in method form, in stating:

In particular, one method under the invention involves:

- providing a charging system configured to charge a plurality of battery systems, the charging system having a limited power usage requirement;
- attaching one or more battery systems to the charging system;
- controlling the distribution of power from the charging system to each attached battery such that the total power used by the charging system does not exceed the power usage requirement. (pg. 13, l. 24 to pg. 14 l. 6)

e. The 60/212,066 Application Meets the Disclosure Requirement

A person of skill in the art, having an understanding of electrical distribution systems, would understand the above-identified portions of the provisional application to disclose that the sum of the secondary power port power ratings establishes an aggregate output power rating, wherein the aggregate output power rating can exceed a designated power limit. That person would also understand the above-identified portions of the provisional application to disclose a system controller circuit configured to regulate the power distributed by at least one secondary power port of the plurality of secondary power ports such that if the sum of the power ratings of the secondary power ports simultaneously used to charge batteries exceeds the designated power limit, where the power received from the power source does not exceed the designated power limit.

Applicants respectfully request the Examiner acknowledge that the provisional application upon which priority is claimed provides adequate support under 35 U.S.C. § 112 for the claim language identified by the examiner in the Office Action.

2. ANTEDATING THE CHAI AND CARSON ET AL. PATENTS

Numerous claims were rejected either under 35 U.S.C. § 102 (e) over Chai, or under 35 U.S.C. § 103 (a) over Chai and additional references. For claims 10-13, these rejections were in light of Carson et al. The application leading to the Chai patent was first filed on August 17, 2000, and the application leading to the Carson et al. patent was filed on September 6, 2001. Provisional application 60/212,066 was filed prior to those dates on June 14, 2000.

As discussed above, the provisional application discloses that the sum of the secondary power port power ratings establishes an aggregate output power rating, wherein the aggregate output power rating can exceed a designated power limit. It further discloses a system controller circuit configured to regulate the power distributed by at least one secondary power port of the plurality of secondary power ports such that if the sum of the

power ratings of the secondary power ports simultaneously used to charge batteries exceeds the designated power limit, where the power received from the power source does not exceed the designated power limit.

5 Every claim having priority from provisional application 60/212,066, the provisional application antedates the Chai and Carson et al. patents. For all those claims, Applicants respectfully request the Examiner withdraw the rejections under §§ 102(e) and 103(a).

10 3. CLAIMS 6-9, 35 and 38-42

In addition to the above arguments, Applicants provide the following remarks regarding specific claims.

15 a. Claim 6

20 Regarding claim 6, to clarify Applicants' intended construction of the claim, Applicants have amended the claim to refer to a "load battery controller." With respect to the vehicle battery charger embodiment described in the application, this would refer to a vehicle battery controller, which is a controller associated with a specific vehicle battery rather than a specific charging port (see, e.g., present specification, p. 12, last paragraph and FIG. 5; provisional specification, p. 10, last paragraph and FIG. 5).

25 Chai fails to disclose a system controller is configured to transmit command signals appropriate to direct load battery controllers to regulate power drawn by the loads plurality of batteries. Applicants respectfully request the rejection of claim 6 under 35 U.S.C. § 102(e) be withdrawn.

b. Claims 7 & 8

Regarding claims 7 & 8, Applicants have amended the claims to better define the invention. Chai and Matsuko et al. fail to disclose a such a system. Applicants
5 respectfully request the rejection of claims 7 & 8 under 35 U.S.C. § 103(a) be withdrawn.

c. Claim 9

Regarding claim 9, Applicants note that Chai discloses an input by which the Chai
10 system can be set to a given rated current value. Chai fails to disclose a system controller configured such that the designated power limit varies. Applicants respectfully request the rejection of claim 9 under 35 U.S.C. § 102(e) be withdrawn.

d. Claim 35

15 Regarding claim 35, Applicants note that Chai fails to disclose a second primary power port, or a system controller is configured to regulate the power levels received via the first and second primary power ports. Moreover, the Office Action does not even allege the presence of such a disclosure. Applicants respectfully request the rejection of
20 claim 35 under 35 U.S.C. § 102(e) be withdrawn.

e. Claims 38 & 39

Regarding claims 38 & 39, Applicants have amended the claims to better define
25 the invention. Chai in view of Gilbert fails to disclose a such a system. Applicants respectfully request the rejection of claims 38 & 39 under 35 U.S.C. § 102(e) be withdrawn.

f. Claims 40-42

30 Regarding claims 40-42, Applicants have amended the claims to include both first and second secondary power ports, each being configured to charge a battery. Gilbert fails

to disclose a such a system. Applicants respectfully request the rejection of claims 40-42 under 35 U.S.C. § 102(e) be withdrawn.

5 4. CLAIMS 24-32

Claims 24-32 were rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Tseng, U.S. Patent No. 5,631,536, in view of McKenszie, U.S. Patent No. 6,003,139, and further in view of Henze, U.S. Patent No. 5,926,004.

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a. The Cited Art Fails to Disclose the Claim Limitations

Claim 24 recites

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a system controller configured to control the power distribution between the utility port and the plurality of secondary power ports, wherein if the sum of the power ratings of the secondary power ports used to charge the plurality of batteries exceeds the maximum power level, the system controller controls the power distribution such that the plurality of batteries are simultaneously charged using power from the utility at a power level not exceeding the maximum power level.

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Claim 32 has a similar recitation. In response to the Applicants' prior remarks, the Examiner pointed out that

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"the sum of the power ratings of the secondary power ports simultaneously used to charge batteries exceeds the designated power limit," does not provide any limitation on the power being consumed by the secondary power ports as the batteries are being charged, it merely requires the secondary power ports in use to have a power rating greater than the designated limit."

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Applicants appreciate that the Examiner agrees on the meaning of this distinction, as it was precisely the meaning intended by Applicants. A system controller configured as claimed is not disclosed in the cited art.

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More particularly, devices such as the Tseng device are known in the art, and are discussed in the background of the present application. These devices have one or more chargers, but the total name plate rating is equal to or greater than the combined name

plate rating of the individual chargers. When chargers are used at less than full capacity (as happens a significant portion of the time), the additional capacity goes unused, as there is no other charger that can make use of it (without operating at a level above its own name plate rating). To upgrade a Tseng system to include more chargers would typically
5 require increasing the total name plate rating of the location from which the system receives power, as well from distribution hubs upstream from that point. This is precisely the problem solved by the present invention.

Although no rejection of claims 24-32 was made over Chai, the Examiner did
10 make reference to that patent in response to Applicants' prior remarks. Applicants respectfully note that the present claims are fully disclosed in the portions of the provisional application discussed above with regard to Chai, and thus the provisional application filing date would antedate the Chai reference.

15 Tseng, McKenzie and Henze all fail to disclose a control system configured as described above. Therefore, the Office Action does not establish a *prima facie* case of obviousness for the rejection of claims 24-32. Because the cited art fails to teach or suggest the features of claims 24-32, as described above, the rejection of claims 24-32 under 35 U.S.C. 103(a) is not proper. Applicants respectfully request this rejection be
20 withdrawn.

b. The Cited Art Fails to Contain a Suggestion to Combine the References

The Office Action recites that it "would have been obvious to one of ordinary skill
25 in the art at the time of the invention was made to modify Tseng to include a power level not exceeding the maximum power level as taught by McKenzie in order to limit the output power and preventing permanent damage to the power supply circuit." As noted in the section above, the total name plate rating of the Tseng device is equal to or greater than the combined name plate ratings of its chargers. As such, it has no possibility of
30 exceeding its maximum power level. A person of skill in the art would not have found it obvious to solve a problem that was not present. Therefore, there is no suggestion in the art to combine the Tseng and McKenzie references.

The cited art fails to disclose a suggestion to combine the references, as described above. Therefore, the Office Action does not establish a *prima facie* case of obviousness for the rejection of claims 24-32. Therefore, the rejection of claims 24-32 under 35 U.S.C. 103(a) is not proper. Applicants respectfully request this rejection be withdrawn.

5. CONCLUSION

In view of the foregoing, Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BUCHANAN et al.

By: _____

John A. Griecci

Registration No. 39,694

For: The Law Office of John A. Griecci

703 Pier Avenue, Suite B #657
Hermosa Beach, CA 90254
(310) 376-6527